| Electronic Patent Application Fee Transmittal    |   |          |          |        |                         |  |  |  |
|--|---|----------|----------|--------|-------------------------|--|--|--|
| Application Number:                              | 10500786  |          |          |        |                         |  |  |  |
| Filing Date:                                     | 02-Jul-2004                                     |          |          |        |                         |  |  |  |
| Title of Invention:                              | PULSE TUBE COOLING BY CIRCULATION OF BUFFER GAS |          |          |        |                         |  |  |  |
| First Named Inventor/Applicant Name:             | Ralph C. Longsworth                             |          |          |        |                         |  |  |  |
| Filer:   | Linda Chan/James Dade                           |          |          |        |                         |  |  |  |
| Attorney Docket Number:                          | SHI 19.251 (310010-00106)                       |          |          |        |                         |  |  |  |
| Filed as Large Entity                            |   |          |          |        |                         |  |  |  |
| U.S. National Stage under 35 USC 371 Filing Fees |   |          |          |        |                         |  |  |  |
| Description                                      |   | Fee Code | Quantity | Amount | Sub-Total in<br>USD(\$) |  |  |  |
| Basic Filing:                                    |   |          |          |        |                         |  |  |  |
| Pages:   |   |          |          |        |                         |  |  |  |
| Claims:  |   |          |          |        |                         |  |  |  |
| Miscellaneous-Filing:                            |   |          |          |        |                         |  |  |  |
| Petition:  |   |          |          |        |                         |  |  |  |
| Patent-Appeals-and-Interference:                 |   |          |          |        |                         |  |  |  |
| Post-Allowance-and-Post-Issuance:                |   |          |          |        |                         |  |  |  |
| Utility Appl issue fee                           |   | 1501     | 1        | 1440   | 1440                    |  |  |  |
| Publ. Fee- early, voluntary, or normal           |   | 1504     | 1        | 300    | 300                     |  |  |  |

| Description        | Fee Code          | Quantity | Amount | Sub-Total in<br>USD(\$) |
|--------------------|-------------------|----------|--------|-------------------------|
| Extension-of-Time: |                   |          |        |                         |
| Miscellaneous:     |                   |          |        |                         |
|                    | Total in USD (\$) |          |        | 1740                    |